PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P191	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/GB2004/004023	International filing date *(day/month/year)* 22.09.2004	Priority date *(day/month/year)* 22.09.2003
International Patent Classification (IPC) or national classification and IPC B01D39/00		
Applicant ABERDEEN UNIVERSITY		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *sent to the applicant and to the International Bureau)* a total of 5 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☒	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
22.07.2005	03.11.2005
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Plaka, T Telephone No. +31 70 340-2325

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/GB2004/004023

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages	
1-21	as originally filed
Claims, Numbers	
1-32	received on 01.08.2005 with letter of 22.07.2005
Drawings, Sheets	
1/4-4/4	as originally filed

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/GB2004/004023

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 31,32

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☒ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. 31,32 are so unclear that no meaningful opinion could be formed *(specify)*:

see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos.

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form	☐	has not been furnished
	☐	does not comply with the standard
the computer readable form	☐	has not been furnished
	☐	does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☒ See separate sheet for further details

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/GB2004/004023

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-30
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-30
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-30
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Contrary to the Rule 6.2(a) PCT, claims 31 and 32 rely, in respect of the technical features of the invention, on reference to the drawings and as such, they have not been examined.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:
D1: EP-A-0 309 776 (PELZER HELMUT) 5 April 1989 (1989-04-05)

The document D1 is regarded as being the closest prior art to the subject-matter of claims 1 and 11 and shows a panel for supporting and protecting a sound insulating fibre media from thermal load. The panel has hollow projections with a tip portion facing in a common direction; each projection further having a base periphery at which adjacent projections are interconnected in a lattice configuration.
The subject-matter of claims 1 and 11 differs from the panel of D1 in that the base peripheries of the hollow projections are interconnected such that apertures are defined between them.

The subject-matter of claims 1 and 11 is therefore new (Article 33(2) PCT).

Although the panel of D1 presents some physical similarities with the panel of the invention, it would have been quite inappropriate to incorporate projections with apertures in D1 for providing protection against thermal loading.
The subject-matter of claims 1 and 11 involves therefore an inventive step (Article 33(3) PCT).

Claims 3 to 7 (dependent on claim 1) and claims 12 and 13, 29 and 30 (dependent on claim 11) also meet the requirements of the PCT with respect to novelty and inventive

step.

Any building cladding system incorporating the panel of this invention (claims 6 to 10) is also novel and inventive. (See also Item VIII, Point 2)

Re Item VIII
Certain observations on the international application

The application does not meet the requirements of Article 6 PCT, because claims 1, 11, 14 to 28 are not clear.

1.
Although claims 1 and 11 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT. The panel configuration of figures 1 and 2 corresponds to the terminology of both claims 1 and 11 and no other embodiment has been disclosed.

2.
Claims 14 to 28 depending directly or indirectly to claim 11 refer to features of the intermediate cladding layer and not to features of the panel, while independent claim 11 refers to the panel.

Claims:-

1. A breathing wall air permeable panel for an intermediate cladding layer having filtering characteristics, said breathing wall air permeable panel comprising:-

a plurality of projections interconnected in a lattice configuration, said projections each having a tip portion, the respective tip portions being arranged to face in a common direction for engagement, in use, with said intermediate cladding layer, each said projection further having a base periphery at which adjacent projections are interconnected, the base peripheries being interconnected such that apertures are defined between the base peripheries in the lattice configuration.

2. An air permeable panel according to claim 1, wherein said projections have a pyramidal form.

3. An air permeable panel according to claim 1 or 2, wherein the projections are provided as a hollowed element.

4. An air permeable panel according to any preceding claim, wherein the projections are configured to restrict penetration thereof into the intermediate cladding layer.

5. An air permeable panel according to claim 4, wherein the cross-sectional area of each projection increases along its longitudinal axis away from their tip portion.

6. A building cladding system incorporating an air permeable panel according to any preceding claim; wherein a

panel is provided on one or both faces of said intermediate cladding layer.

7. A building cladding system according to claim 6, further comprising a wall member, adjacent the panel and coupled thereto.

8. A building cladding system according to claim 7, comprising internal and external wall members within which the panel and intermediate cladding layer are provided.

9. A building cladding system according to claim 7 or 8, further comprising one or more edge members, configured to interconnect adjacent intermediate cladding layers.

10. A building cladding system according to claim 9, wherein the edge members have limbs in a cross formation, the limbs being inclined similarly to surfaces of the projections on adjacent panels for abutment thereto.

11. A breathing wall air permeable panel for an intermediate cladding layer having filtering characteristics, the panel comprising:-

a plurality of hollowed elements interconnected in a planar lattice arrangement, said hollowed elements facing in a common direction and being interspersed with apertures, the hollowed elements being interconnected at their base peripheries to define said apertures therebetween.

12. A panel according to claim 11, wherein the hollowed elements have a pointed outer surface for engaging said intermediate cladding layer.

13. A panel according to claim 11 or 12, wherein each hollowed element has a pyramidal form.

14. A panel according to any one of claims 11 to 13, wherein the intermediate layer has a graduated filtering profile.

15. A panel according to claim 14, wherein the filtering characteristics of the intermediate layer are such as to trap relatively large particles towards an outer surface thereof and to trap relatively smaller particles towards the inner surface thereof.

16. A panel according to any one of claims 11 to 15, wherein the intermediate layer has thermal and/or sound insulating properties.

17. A panel according to any one of claims 11 to 16, wherein intermediate layer comprises one or more of:- mineral wool, wet-blown cellulose and glass wool.

18. A panel according to any one of claims 11 to 17, wherein the intermediate layer is provided in the form of one or more of:- membranes, fibres, pulp or cellular based (foam or sponge) materials, or modified aerated concrete.

19. A panel according to any one of claims 11 to 18, wherein the cladding material comprises filter materials for one or more of:- particulate emissions, gas pollutants, chemical agents and biological agents.

20. A panel according to any one of claims 11 to 19, wherein the cladding material is provided in the form of

panel units.

21. A panel according to claim 20, wherein the panel units are provided in modular format.

22. A panel according to any one of claims 11 to 21, wherein the intermediate layer is formed of a plurality of one or more separate filter layers, of different filtering characteristics.

23. A panel according to claim 22, wherein each filter layer of the intermediate layer is selected to extract a specified range of particle sizes, gaseous pollutants, chemical pollutants, and/or biological agents.

24. A panel according to claim 23, wherein the separate filter layers of the intermediate layer together define substantially the complete filter spectrum of particulate and other pollution.

25. A panel according to any one of claims 22 to 24, wherein the or each filter layer of the intermediate layer is independently replaceable.

26. A panel according to any one of claims 22 to 25, wherein the or each filter layer of the intermediate layer comprises one or more disposable filter elements.

27. A panel according to any one of claims 11 to 26, wherein the panel is pressed from a single sheet.

28. A panel according to any one of claims 11 to 26, wherein the panel is moulded from a plastics material.

29. A panel according to any one of claims 11 to 28, wherein the panel is formed of fire retardant materials.

30. A panel according to any one of claims 11 to 29, wherein in use with the hollowed elements at or adjacent the intermediate layer, the apertures present an opening of expanding volume onto the intermediate layer.

31. An air permeable panel substantially as hereinbefore described with reference to the accompanying drawings.

32. A building cladding system substantially as hereinbefore described with reference to the accompanying drawings.